WHAT IS CLAIMED IS:

1. A data transmission apparatus for sending out a transmission request signal to a data receiver unit and transmitting, on receiving a transmission permission signal from said data receiver unit, data to said data receiver unit, said data transmission apparatus comprising:

a data transmitter for transmitting data input thereto to said data receiver unit;

a transmission time calculator for calculating a transmission time period up to a time when the data transmitted reaches an amount determined in accordance with a plurality of parameters, which are input from an outside of said data transmission apparatus; and

a control circuit for setting, based on the transmission time period, a maximum amount of data to be transmitted next and controlling transmission of the data;

said control circuit comprising:

a management time calculator for converting the transmission time period to a unit management time period representative of a transmission in unit time for management, determining allowable unit management time periods allowable for the unit management time, selecting one of said allowable unit management time periods as a management time period, calculating the maximum amount of data, and generating a timing signal indicative of an elapse of the management time period;

an accumulator manager for holding and managing a total amount of data transmitted;

a maximum transmission amount generator for generating the maximum amount of data to be transmitted next as a limit while updating the limit; and

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a monitor/controller for comparing the total amount of data with the maximum amount, inhibiting, based on a result of comparison, said data transmitter from transmitting data or canceling an inhibition while holding, when the total amount exceeds the maximum amount, a difference between the total amount and the maximum amount, and feeding the difference to said maximum transmission amount generator.

2. The apparatus in accordance with claim 1, wherein said transmission time calculator uses, among the plurality of parameters, a transmission rate lying in a range that allows data to be transmitted for a unit period of time and a unit amount of data to be transmitted by a single transmission.

3. The apparatus in accordance with claim 2, wherein said transmission time calculator comprises:
a unit converter for converting the transmission rate lying in the allowable range to a preselected unit; and
an allowable time generator for determining an allowable range of transmission time periods in which the unit amount of data can be transmitted at the transmission rate lying in the allowable range, and selecting one of allowable transmission time periods lying in the allowable range;

4. The apparatus in accordance with claim 1, wherein said management time calculator selects, as the management time period, one of the allowable unit management time periods corresponding to the allowable range of transmission time periods, multiplying the unit management time period

selected by the transmission rate to thereby produce a maximum amount of data to be transmitted as an initial limit, and outputting the management time period and the initial limit; and

a counter for counting a time up to an elapse of the management time period and outputting a timing signal on the elapse of the management time period.

5. The apparatus in accordance with claim 2, wherein said management time period calculator selects, as the management time period, one of the allowable unit management time periods corresponding to the allowable range of transmission time periods, multiplying the unit management time period selected by the transmission rate to thereby produce a maximum amount of data to be transmitted as an initial limit, and outputting the management time period and the initial limit; and

a counter for counting a time up to an elapse of the management time period and outputting a timing signal on the elapse of the management time period.

6. The apparatus in accordance with claim 3, wherein said management time calculator selects, as the management time period, one of the allowable unit management time periods corresponding to the allowable range of transmission time periods, multiplying the unit management time period selected by the transmission rate to thereby produce a maximum amount of data to be transmitted as an initial limit, and outputting the management time period and the initial limit; and

a counter for counting a time up to an elapse of the management time period and outputting a timing signal on

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the elapse of the management time period.

7. The apparatus in accordance with claim 1, wherein said accumulator manager outputs, after said maximum transmission amount generator has determined the maximum amount of data to be transmitted next, a timing signal in response to the elapse of the management time period.

8. The apparatus in accordance with claim 2, wherein said accumulator manager outputs, after said maximum transmission amount generator has determined the maximum amount of data to be transmitted next, a timing signal in response to the elapse of the management time period.

9. The apparatus in accordance with claim 3, wherein said accumulator manager outputs, after said maximum transmission amount generator has determined the maximum amount of data to be transmitted next, a timing signal in response to the elapse of the management time period.

10. The apparatus in accordance with claim 4, wherein said accumulator manager outputs, after said maximum transmission amount generator has determined the maximum amount of data to be transmitted next, a timing signal in response to the elapse of the management time period.

11. A method of controlling data transmission comprising:

a first step of sending out a transmission request signal to a data receiver unit;

a second step of transmitting, on receiving a transmission permission signal from the data receiver unit,

data to the data receiver unit;

a third step of setting a plurality of parameters;

a fourth step of determining a transmission time period up to a time when the data transmitted reaches an amount matching with the plurality of parameters and a unit management time period representative of a transmission time period for managing the transmission time period;

a fifth step of selecting, as a management time period, one of allowable unit management time periods lying in a range allowable for the unit management time period;

a sixth step of generating a maximum amount of data to be transmitted for the management time period as a limit;

a seventh step of holding and managing a total amount of data transmitted;

an eighth step of comparing the total amount with the maximum amount;

a ninth step of counting, if the total amount is smaller than the maximum amount, a time interval for which the data is transmitted in a burst to thereby determine whether or not the time interval has expired;

a tenth step of interrupting, if the total amount is greater than the maximum amount, transmission of the data and holding an excess value produced by subtracting the maximum amount from the total amount;

an eleventh step of determining whether or not the management time period has expired;

a twelfth step of repeating said third step if the management time period has not expired;

a thirteenth step of setting, if the management time has expired, a difference between the maximum amount and the excess value as a new limit;

a fourteenth step of canceling interruption of the

transmission of the data after the limit has been updated; and

a fifteenth step of resetting the total amount, the excess value and the management time period after cancellation of the interruption, said fifteenth step being followed by said second step.

12. The method in accordance with claim 11, wherein the plurality of parameters comprise rate information relating to the transmission of the data and a minimum amount of data to be transmitted, said method further comprising the steps of:

selecting, following said fourth step, among converted rates of transmission for a unit burst time produced from the rate information, a smaller one of two unit converted rates closest to a converted rate corresponding to the rate information;

dividing the minimum amount of data by the converted rate selected to produce the transmission time period;

selecting, among converted unit management time periods produced from the transmission time period, two converted unit management time periods closest to a unit management time corresponding to the transmission time period as candidates for the allowable unit management time; and

selecting greater one of said candidates.

13. The method in accordance with claim 11, wherein the maximum amount has an initial value produced from a product of the converted rate and the management time.

14. The method in accordance with claim 12, wherein

the maximum amount has an initial value produced from a product of the converted rate and the management time.

15. The method in accordance with claim 11, wherein said fifteenth step resets the total amount after the new limit has been determined and resets the excess value by delaying a timing signal, which is output when the management time period elapses, by a single pulse period of a system clock.

16. The method in accordance with claim 12, wherein said fifteenth step resets the total amount after the new limit has been determined and resets the excess value by delaying a timing signal, which is output when the management time period elapses, by a single pulse period of a system clock.

17. The method in accordance with claim 13, wherein said fifteenth step resets the total amount after the new limit has been determined and resets the excess value by delaying a timing signal, which is output when the management time period elapses, by a single pulse period of a system clock.

18. The method in accordance with claim 14, wherein said fifteenth step resets the total amount after the new limit has been determined and resets the excess value by delaying a timing signal, which is output when the management time period elapses, by a single pulse period of a system clock.